REQUEST FOR RECONSIDERATION

Applicants thank Examiner Blum for the helpful and courteous discussion of March 14, 2005. During the discussion, Applicants' U.S. representative presented arguments that the coated substrates of the prior art cannot anticipate or render obvious the presently claimed invention at least because the claimed invention is a vapor deposition material in a different form than the coated substrates of the prior art.

The Office rejected the previously presented claims under obviousness-type double patenting in view of U.S. Serial No. 09/457,743 (now U.S. Patent No. 6,821,616). Applicants draw the Office's attention to the preamble of independent Claim 1 of the '616 patent. The claims of the '616 patent are drawn to an "FPD protecting film". An FPD is a flat panel display. The invention of the '616 patent is drawn to a film that protects a flat panel display. In contrast, the present claims are drawn to a "vapor deposition material". A vapor deposition material is not a flat panel display. A vapor deposition material may be the source from which a material such as a metallic oxide may be evaporated to form a flat panel display. Applicants submit that the FPD protecting film of the '616 patent and the claimed vapor deposition material are different inventions that cannot render one another obvious.

Independent Claim 26 has been amended to state that the claimed vapor deposition material is in the form of a pellet the surface of which is entirely covered with a fluoride layer of formula MO_XF_Y.

New dependent Claims 41 and 42 have been added. The new dependent claims recite one of the features of the claimed vapor deposition material; namely, air stability. This stability in air is beneficial to a vapor deposition process because it allows air handling of the raw material which is used to form, for example, a flat panel display. The presence of the MO_XF_Y layer around the claimed vapor deposition material prevents reaction between the

material core which is made of a material such as a metal oxide (e.g., MgO, CaO, etc) and atmospheric components such as CO_2.

The Examples disclosed in the specification as originally filed demonstrate the effectiveness of the fluoride layer in protecting the core material from reaction with the components of air. The inventive examples tabulated in Tables 1 and 2 on pages 35 and 36 of the specification generally have a weight gain of 0.1% or less after standing in air for seven days. In comparison, the Comparative Examples tabulated in Tables 3 and 4 on pages 37 and 38 of the specification (i.e., examples which do not have a fluoride layer) have a weight gain that is greater by at least an order of magnitude in comparison to the claimed vapor deposition materials. Thus the claimed vapor deposition material may be handled in air without significant decomposition of the core material which may be evaporated to form, for example, a flat panel display.

How can a raw material in pellet form used to manufacture, for example, a flat panel display be obvious in view of the flat panel display thus produced when manufacturing requires evaporation of the material in the pellet form and a subsequent deposition of the material in a flat form?

Amended independent Claim 26 is drawn to a pellet which is entirely covered with a fluoride layer. In the Office Action of August 6, 2004, in the first full paragraph of page 7 the Office states:

> Konishi does not teach any method of masking a portion of the substrate, it is considered that Konishi teaches covering the entire surface with a fluoride layer.

The Office has provided no support for the assertion that Konishi teaches covering the entire prior art surface with a fluoride layer. Applicants submit that Konishi's silence with regard to masking the substrate is not sufficient evidence to prove that the entire prior art surface is covered with a fluoride layer.

Applicants submit that those of ordinary skill in the art would in fact readily recognize that the entire prior art surface is not covered with a fluoride layer from Konishi's detailed description of the invention. Applicants draw the Office's attention to column 7, lines 56-60 and Figure 1 of Konishi. As is evident from Figure 1 the substrate (reference no. 4 in Figure 1) is placed in the prior art reactor and heated from one side by a heater (reference no. 5 in Figure 1). The prior art gases which are used to form the prior art coating are directed "towards the heated substrate through a nozzle" (column 7, lines 59-60). It is evident from Figure 1 that the gases directed at the substrate will impinge only on the front surface (i.e., that surface which is facing the nozzle from which the prior art gases are injected) and not the back surface. Applicants submit that those of ordinary skill in the art would readily recognize that because the prior art process is carried out under high vacuum (e.g., 10^{-2} torr or less (column 7, lines 21-22)) that any overspray from the injection nozzle does not necessarily impinge upon the rear-facing surface of the substrate.

Therefore, it is not necessary that the prior art disclose the use of masking to indicate that not the entire surface of the prior art substrate is covered with a film layer. Applicants submit that those of ordinary skill in the art would readily recognize that the rear-facing surface of the substrate treated in the process described in Konishi would not be covered with a fluoride film. Therefore Konishi does not disclose covering an entire surface with a fluoride layer of formula MO_XF_Y.

Moreover, the substrate of Konishi must be held in place by some mechanism that contacts and immobilizes the prior art substrate. Applicants submit that at least at these contact points the prior art substrate cannot be covered with a fluoride film.

With regards to the rejection of dependent Claim 31 as obvious in view of Konishi the Office has stated that the specification must disclose some criticality of the thickness of the fluoride layer in order to render the subject matter of Claim 31 patentable. The Office

appears to indicate that Applicants have the burden of proving patentability by showing criticality for any dimensions. Applicants submit that the Office's characterization of U.S. patent law is not correct. Applicants must only show that an invention is novel and not obvious in view of the prior art.

In the present application the vapor deposition material was rejected as obvious in view of prior art disclosing substrates coated with certain fluoride layers. Applicants submit that the function of the prior art fluoride layer is different than the function of the fluoride layer in the presently claimed vapor deposition material. In Konishi the function of the fluoride layer is described as follows:

> The thin film of fluoride produced by the process of the present invention is useful as an *optically functional material.*

In contrast, and as stated throughout the present specification, the function of the fluoride layer in the presently claimed invention is to protect the core of, for example, a metal oxide material (e.g., MgO, CaO) from reaction with atmospheric gases such as CO_2 and/or H_2O. The function of the fluoride layer in the presently claimed invention is different than the function of the fluoride layer in the prior art disclosure. Therefore the question is not whether Applicants have disclosed criticality for certain thicknesses of the claimed fluoride layer but whether or not the prior art fluoride layer can render the claimed fluoride layer obvious. Applicants submit that the difference in function of the optically functional prior art fluoride layer and the protective function of the claimed fluoride layer is sufficient to demonstrate that a substantially thinner fluoride layer can be effective in the claimed vapor deposition material in comparison to the thickness of the fluoride layers disclosed in the Examples of Konishi.

While the Office characterizes the narrower range of dimensions as having no criticality and therefore may be considered optimization, Applicants submit that the thinner

fluoride layer of the claimed invention is probative of structural and functional differences between the claimed vapor deposition material and the prior art fluoride layer as reflected in the different functionalities of the fluoride layer in the claimed vapor deposition material (i.e., as a gas-protecting agent), and the prior art (i.e., as an optically functional material).

In response to the Office Action of August 6, 2004, Applicants submitted a Request for Reconsideration on January 4, 2005. The Office mailed an Advisory Action on January 21, 2005. The Advisory Action indicates that the Request for Reconsideration has not overcome any of the rejections (item 3 of the Advisory Action) but provided no explanation for this conclusion.

For example, Claims 27 and 28 were previously rejected under obviousness-type double patenting. Claims 27 and 28 were canceled in the Request for Reconsideration filed on January 4, 2005. Thus at least the obviousness-type double patenting rejection should have been overcome and the same should have been indicated in the Advisory Action. Applicants request clarification.

Applicants submit that the previously presented claims remain patentable over Konishi as supported by the arguments of the Request for Reconsideration filed on January 4, 2005. These arguments are repeated below for the Office's convenience.

In the Office Action of August 6, 2004 the Office rejected previously presented Claims 26-30, 33-35, 38 and 40 as anticipated in view of a patent to Konishi (U.S. 5,891,531). The Office asserts that Konishi teaches a device wherein a single crystal material is covered with a fluoride layer comprising the formula MO_XF_Y (page 3 paragraph 3 of the Office Action of August 6, 2004). The Office cites to the disclosure "very little impurities, such as oxygen" in column 8 of Konishi as evidence that the claimed invention is anticipated.

Applicants traverse the rejection on the grounds that Konishi does not disclose a fluoride layer comprising a material of formula MO_XF_Y where $0 < X < 2$ and $0 < Y \leq 4$. It

appears that the Office is asserting that the presently claimed invention is anticipated by Konishi based on the Office's interpretation of the disclosure "a highly pure transparent thin film of a fluoride containing very little impurities, such as ...oxygen..." inherently describes a material of formula MO_XF_Y. Applicants submit that a film that contains both fluoride and oxygen is not necessarily a material of the formula MO_XF_Y recited in previously presented independent Claim 26. For example, a fluoride which contains a hydroxide (i.e., -OH) may be a hydroxide-containing fluoride which contains an oxygen-containing impurity. However, the formula of such a material may be, for example, $M(OH)_AF_B$. This oxygen-containing impurity-containing fluoride is not a material of formula MO_XF_Y as recited in previously presented independent Claim 26.

Applicants submit that the formula recited in independent Claim 26 must be a metal oxide fluoride. A material of formula MO_XF_Y must have a metal oxide bond and a metal fluoride bond. The prior art "film of a fluoride containing very little impurities such as oxygen" does not necessarily have a metal oxide bond instead it may have, for example, a metal hydroxide bond. Alternatively the oxygen impurities in the prior art film may not be bonded to any metal and may instead by molecular oxygen (e.g., O_2) adsorbed onto the surface of the prior art film.

It appears that the Office has taken official notice that a fluoride film containing oxygen impurities must necessarily contain a compound having a metal oxide bond and furthermore must conform to the formula MO_XF_Y.

Applicants draw the Office's attention to *Durel Corp. v. Osram Sylvania Inc.*, 59 USPQ2d 1238 (CAFC 2001). In *Durel* a District court erroneously interpreted the term "oxide coating" as including coatings that contained only metal-hydroxide (e.g., $Al(OH)_3$) compounds. The Federal Circuit ruled that the District court erred in construing the term oxide as encompassing materials which may contain only metal hydroxide moieties.

Applicants bring *Durel* to the Office's attention in the present case to demonstrate that an oxide and a hydroxide are different chemical entities and that one does not necessarily anticipate or suggest the other even though both oxides and hydroxides comprise an oxygen atom. The Federal Circuit's distinction between the terms oxide and hydroxide to differentiate and distinguish different types of oxygen-containing materials serves to evidence in the present case that "a fluoride containing very little impurities such as...oxygen..." is not necessarily a metal oxide material of formula MO_XF_Y as recited in previously presented independent Claim 26.

Furthermore, Applicants submit that nowhere in Konishi is a metal oxide fluoride of formula MO_XF_Y disclosed either implicitly or inherently in the examples.[1] In the Amendment and Request for Reconsideration filed in this case on May 17, 2004, Applicants rebutted the Office's rejection in the Office Action of January 23, 2004 that the subject matter of independent Claim 26 was anticipated by Konishi. Applicants pointed to the Examples of Konishi to demonstrate that the process of Konishi does not inherently provide a fluoride layer having a metal oxide of the formula MO_XF_Y recited in previously presented independent Claim 26. Inventive Example 1 of Konishi is analyzed by X-ray photoelectron spectroscopy and is demonstrated to be free of residual carbon or oxygen (column 11, lines 4-8). Konishi provides Example 2 as a showing of a fluoride film that contains carbon and/or oxygen impurities. The thin film of Example 2 of Konishi is shown to have an O-H stretching vibration (e.g., a hydroxide may be present) and is also shown to have a C=O stretching vibration (e.g., a carbonyl group may be present). The thin film also has a stretching vibration assigned to a C-F moiety which may represent organic substance impurities. Thus the fluoride film of Example 2 may contain oxygen in the form of

[1] Konishi describes substrates that are described as, for example, calcium fluoride, fluoride glasses, oxide glasses, silicon, and magnesium oxide (column 10, lines 12-17), however the prior art substrate is not the fluoride layer.

hydroxide and/or carbonyl and CF organic residues, and may therefore have a formula of, for example, $M(OH)_A(C=O)_B(C\text{-}F_x)_CF_D$.

In the Response to Arguments section on page 8 of the Office Action of August 6, 2004, it appears that the Office is asserting that the presence of any amount of oxygen in any form in a fluoride film will serve to anticipate the invention of present independent Claim 26. As already noted above, a fluoride film containing oxygen is not necessarily a film containing a compound of formula MO_XF_Y wherein oxygen and fluorine must be present.

An important distinction is therefore whether or not the impurity disclosed in Konishi is present as a metal oxide fluoride of formula MO_XF_Y. Nowhere in Konishi is such a material explicitly disclosed. In the examples of Konishi when an oxygen impurity is present it is shown not to be a metal oxide but rather a hydroxide or carbonyl. Therefore there is no evidence of record that the impurity of Konishi may be of the formula MO_XF_Y as recited in present independent Claim 26.

Moreover, the fluoride glasses of Konishi (e.g., fluoride films present on the surface of the prior art substrate) are nowhere disclosed to contain oxygen (see for example column 10, lines 18-25). To anticipate a claim, a reference must teach every element of the claim (MPEP § 2131.01). "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California* 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as contained in the...claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1931, 1920, (Fed. Cir. 1989).

Applicants submit that because Konishi does not disclose the metal oxyfluoride of formula MO_XF_Y recited in present independent Claim 26, and because an oxygen impurity is not necessarily a metal oxide or a compound of formula MO_XF_Y, Konishi does not disclose

each and every element of the presently claimed invention and cannot anticipate previously presented independent Claim 26 or any claim dependent therefrom.

Accordingly, the rejection of independent Claim 26 as anticipated by Konishi is not supportable and the rejection should be withdrawn.

The Office rejected previously presented Claims 36, 37 and 39, wherein the metal oxygen fluoride is of the formulas recited in the respective claims, as obvious in view of Konishi. It appears that the Office is asserting that because Konishi discloses "a fluoride containing very little impurities, such as...oxygen..." that a fluoride layer containing the metal oxyfluorides recited in dependent previously presented Claims 36, 37 and 39 is obvious. Applicants submit that Konishi nowhere describes the metal oxide materials recited in dependent previously presented Claims 36-37 and 39 (see discussion above). It appears that the Office has extended the teaching of "very little impurities, such as oxygen" in a manner that would inherently include metal oxides of any O:F stoichiometry.

Applicants submit that there is no evidence of record to support the assertion that the presence of "oxygen" in the prior art film provides a material of formula MO_XF_Y. Applicants further submit that the prior art disclosure of "very little impurities" may not suggest to those of skill in the art the presence of compounds having the defined O:F stoichiometries recited in the present dependent claims.

How can a compound of, for example, formula MOF, as recited in previously presented dependent Claim 39, be obvious in view of a fluoride film containing oxygen in an amount characterized by the prior art as "very little impurities"?

In a compound of formula MOF there is a 1:1 stoichiometry of oxygen atoms to fluorine atoms. Such a chemical formula does not appear to be suggested by small amounts of impurities but instead discloses that equal amounts of oxygen and fluorine must be present and each must be bonded to a metal atom.

A film of formula MO_XF_Y where X may be 0.25 or greater (see dependent Claim 36) indicates that substantial amounts of oxygen are present. Applicants submit that this amount of oxygen may be expected by those of ordinary skill in the art to be greater than an amount of oxygen described by the prior art a "very little impurity."

Applicants submit that the vapor deposition materials of previously presented dependent Claims 36-37 and 39 wherein the presence of metal oxyfluoride materials having substantial molar equivalence of oxygen per fluorine atom present are not obvious in view of prior art films that contain "very little..." oxygen.

The Office also appears to indicate that because Konishi discloses that oxygen may be present as an impurity it may be possible to optimize the impurity level in the process of Konishi to reach the claimed invention. Applicants note however that the process of Konishi is different than the process by which the claimed invention is produced. The metal fluoride of Konishi is formed by reacting a gas of fluoridation agent (e.g., a fluoride precursor) and a gas of a volatile organometallic compound to deposit a fluorinated material on a substrate. In contrast, the fluoride layer of the claimed invention may be obtained by reacting a fluoridation agent with one or more types of metal oxides (page 7, lines 18-19). Therefore, in the process disclosed in the present application, oxygen is necessarily bonded with a metal atom during formation of the fluoride film whereas the Konishi process attempts to deposit a pure metal fluoride onto a substrate by the avoidance of compounds which contain a metal oxide bond.[2]

[2] Applicants do not submit that the process of production is a limitation of the present claims or that the process of production is the only basis for distinguishing the claimed invention from the prior art. Applicants provide this information to point out that the process of Konishi is carried out in a manner to avoid incorporation of oxygen whereas the claimed film can be prepared in a manner that necessarily involves a metal oxide precursor.

In summary, Applicants submit that the present invention is not anticipated by Konishi because (i) Konishi does not disclose a pellet entirely covered with a metal oxy fluoride, (ii) Konishi does not disclose a fluoride layer containing a material of formula MO_XF_Y, (iii) the disclosure of "a little amount of impurities, such as oxygen" does not inherently disclose a material of formula MO_XF_Y, and (iv) the examples of Konishi which provide evidence that when oxygen is present in the prior art film, its compositional characteristic is inconsistent with a material of formula MO_XF_Y.

Applicants therefore submit the rejection of the present claims as anticipated or obvious in view of Konishi is not supportable and the rejection should be withdrawn.

Respectfully submitted,

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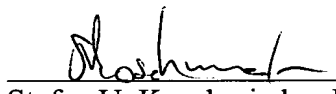

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